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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,111	03/24/2004	Christian L. Belady	200316167-1	4172
22879	7590	01/05/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			DATSKOVSKIY, MICHAEL V	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/808,111

Applicant(s)

BELADY ET AL.

Examiner

Michael V. Datskovskiy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8,12 and 18-25 is/are rejected.
- 7) ☒ Claim(s) 3,7,9-11,13-17,26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 4-6, 8, 12, 18-24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kirshberg et al (US Patent 6,976,527).

Kirshberg et al teach a loop thermosyphon system, Figs. 1-4, comprising:

a semiconductor die (col. 3, lines 4-10 and 65-67) having a plurality of microchannels; a condenser 12 in fluid communication with grooves 24; said grooves 24 are shaped to create a wicking structure for preferential cooling fluid flow along one direction toward the condenser 12 and further toward heat generating region of the semiconductor die.

Kirshberg et al teach furthermore said system further comprising an input fluid conduit 16 for coupling fluid from the condenser 12 to the semiconductor die, said input conduit 16 having a wicking structure 26 being internal to said conduit 16. Kirshberg et al teach furthermore said system further comprising a plate 22 coupled with the die to seal the microchannels such that fluid flows through the microchannels. Kirshberg et al teach furthermore said system, further comprising an output fluid conduit 14, for coupling fluid

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from the microchannels to the condenser, wherein the wicking structure comprising thermally conductive material (col. 2, lines 41-60). Regarding to claims 22-24 and 25: The method steps are necessitated by the device structure as Kirshberg et al disclosed it.

***Allowable Subject Matter***

3. Claims 28-29 are allowed.
4. Claims 3, 7, 9-11, 13-17 and 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: Said system further comprising: an input header (claim 3); an output header (claim 7); the wicking structure comprising copper (claim 9); the wicking structure being selected from the group comprising porous-like material, powder, fiber, screen and mixtures thereof (claims 10-11); said system further comprising: blocking material forming at least one orifice at an input to at least one microchannels (claims 13-14 and 26); the condenser being arranged above the die (claim 15); the system further comprising fluid-restrictive material at least one of the microchannels for preferential fluid flow along one direction (claims 16-17 and 27-29);
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Joshi et al (US Patent Application Publication 2002/0179284 A1) and O'Connor et al (US Patent 6,501,654).

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Datskovskiy whose telephone number is (571) 272-2040. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael V Datskovskiy  
Primary Examiner  
Art Unit 2835

12/28/2005